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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/863,128 | 05/22/2001 | F. Patrick Doty | SD-8286 | 9592 |

7590 11/07/2006

Timothy Evans
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| EXAMINER | |
|---|---|
| STOCK JR, GORDON J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2877 | |

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Interview Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/863,128 | DOTY ET AL. | |
| | Examiner | Art Unit | |
| | Gordon J. Stock | 2877 | |

All participants (applicant, applicant's representative, PTO personnel):

(1) *Gordon J. Stock*. (3)_____.

(2) *Attorney D.A. Nissen*. (4)_____.

Date of Interview: *31 October 2006*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *35,37,40,51,52 and 63-65*.

Identification of prior art discussed: *Bardash (US 6,278,117); Butler et al. (4,641,037); Selph (4,445,036)*.

Agreement with respect to the claims f)☒ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *See Continuation Sheet*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Agreement with respect to some of the claims was reached and with the other claims were discussed. A proposed amendment was discussed (see attached and attached PTOL-413A). Examiner agreed that claims 37 and 40 overcome the prior art. Claim 50 will overcome the prior art and be definite if 'electrodes are composed of silicon wafers' read -electrodes are silicon wafers-. As for claims 35, 51, 52, 63-65 Examiner stated that the claims as written do not overcome the rejection using Bardash until the claims are amended to differentiate the electrodes from the electrodes of Bardash. Examiner suggested using a phrase as 'each wire of the first plurality of parallel spaced apart wires intersect orthogonally with each wire of the second set of plurality of parallel spaced apart wires.' In regards to claim 52, Examiner suggested correcting 'multilayer array' to -multilayer stack.- The objection to the drawings in the previous action was discussed, and the Examiner suggested submitting new drawings or making claims 40 and 50 into method claims to overcome the objection. It was also discussed that the objection to the drawing may be withdrawn from responding with an argument in regards to the interpretation of 37 CFR 1.83(a) in view of 37 CFR 1.81. A response will be filed with an amendment to the claims that will take into account Examiner's comments in the interview such as an amendment to claims 35, 50-52, 63-65.

# Summary of Record of Interview Requirements

**Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record**
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

**Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews**
Paragraph (b)
In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

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The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

**Examiner to Check for Accuracy**

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

PTOL-413A (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

# Applicant Initiated Interview Request Form

Application No.: 09/863,128 First Named Applicant: Doty
Examiner: Stock, G. Art Unit: 2877 Status of Application: After non-Fin'l

**Tentative Participants:**
(1) D. A. NISSEN (2) _____
(3) G. STOCK (4) _____

**Proposed Date of Interview:** 10/31/06 **Proposed Time:** 11:00 (AM)/PM)

**Type of Interview Requested:**
(1) [✓] Telephonic (2) [ ] Personal (3) [ ] Video Conference

**Exhibit To Be Shown or Demonstrated:** [ ] YES [X] NO
**If yes, provide brief description:** _____

## Issues To Be Discussed

| Issues (Rej., Obj., etc) | Claims/ Fig. #s | Prior Art | Discussed | Agreed | Not Agreed |
|---|---|---|---|---|---|
| (1) REJ. | 35, 51, 52, 53-55 | US 6278117, 4611057, 4505036, | [X] | [ ] | [ ] |
| (2) REJ. | 37, 40 | | [ ] | [X] | [ ] |
| (3) REJ. | 50 | | [ ] | [X] | [ ] |
| (4) OBJ. | FIGURES | | [X] | [ ] | [ ] |

[ ] Continuation Sheet Attached

**Brief Description of Arguments to be Presented:**

DISCUSS PROPOSED AMENDMENT VS. PRIOR ART OF RECORD.
SEE ATTACHED.

**An interview was conducted on the above-identified application on** 10/31/06.
**NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).**
**This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.**

Applicant/Applicant's Representative Signature — Examiner/SPE Signature

D. A. NISSEN
Typed/Printed Name of Applicant or Representative

44,261
Registration Number, if applicable

**IN THE U. S. PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| In re Application of: | Doty |
| Application Number: | **09/863,128** |
| Filed: | **05/22/2001** |
| For: | **DETECTION OF IONIZING RADIATION BY POLYMER MATERIALS** |
| Art Unit: | 2877 |
| Examiner: | Stock, G. |
| Attorney Docket No: | SD-8286 |

DO NOT ENTER

**Proposed Claims for Application No. 09/863,128**

1-34 (canceled)

35. (currently amended) A device for detecting ionizing radiation, comprising: an array of wires embedded in ~~the material of claim 1~~ a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm, the array comprising a first ~~set~~ plurality of parallel spaced apart wires intersecting orthogonally with a second ~~set~~ plurality of parallel spaced apart wires; and means for supplying power to the array.

36. (previously presented) The device of claim 35, wherein the wires are spaced at a distance of from 10μm to 100μm apart.

37. (currently amended) A device for detecting ionizing radiation, comprising: a plurality of layers joined together to form a multilayer stack, wherein each layer comprises an array of wires embedded in ~~the material of claim 1~~ a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm, the array comprising a first ~~set~~ plurality of parallel wires intersecting orthogonally with a second ~~set~~ plurality of parallel wires; and means for supplying power to each array.

38. (previously presented) The device of claim 37, wherein the wires are spaced at a distance of from 10μm to 100μm apart.

39. (canceled)

40. (currently amended) A device for detecting ionizing radiation, comprising:

a pair of electrodes, each having a length and width, wherein the length is greater than the width;

a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm disposed between said electrodes, wherein the combination of electrodes and π-conjugated ~~polymer~~ material is rolled up along their length to form a generally cylindrical-shape structure; and

means for providing power to said electrodes.

41-46. (canceled)

47. (currently amended) ~~The material~~ The device as in any one of claims ~~1~~, ~~3~~, ~~12~~, ~~24~~, 35, 37 and 40 wherein an external stress is applied to the π-conjugated material ~~by stretching the π-conjugated material~~ at a temperature above the glass transition temperature of the material and below the melting temperature ~~to strain and orient the polymer chains~~.

48. (currently amended) The device of claim 47, wherein the external stress is applied ~~at a temperature above the glass transition temperature of the material and below the melting temperature~~ by stretching or generally deforming the π-conjugated material.

49. (canceled).

50. (currently amended) A device for detecting ionizing radiation, comprising:

electrodes, wherein said electrodes are composed of silicon wafers having prefabricated pulse detection circuitry patterned thereon;

~~the material of claim 1~~ a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm disposed between said electrodes; and

power supply means for providing power to said electrodes.

51. (currently amended) A method for detecting ionizing radiation, comprising:

providing an array of wires embedded in ~~the material of claim 1~~ a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm, the array comprising a first ~~set~~ plurality of parallel spaced apart wires intersecting orthogonally with a second ~~set~~ plurality of parallel spaced apart wires;

supplying electric power to the array;

inserting the array into a radiation field; and

detecting the signal generated when radiation strikes the wires.

52. (previously presented) The method of claim 51, wherein the array is a multilayer array.

53. (new) The device as in claims 35 or 37, wherein the wires are electrically conducting oxides, electrically conducting polymers or combinations thereof.

54. (new) The device of as in any one of claims 35, 37, 40, and 50 wherein the π-conjugated material comprises a mixture of π-conjugated materials.

55. (new) The device of claim 54, wherein the π-conjugated material includes π-conjugated polymers having long chains of alternating single and double carbon-carbon bonds, polyaromatic hydrocarbons, or quinolates.

56. (new) The device of claim 55, wherein the π-conjugated polymers are selected from the group of polymers consisting of polyacetylenes, polypyrroles, polyfluorines, and derivatives and combinations thereof.

57. (new) The device of claim 56, wherein the derivative π-conjugated polymer is selected from the list of polymers consisting of poly(1-methoxy-4-(2-ethylhexyloxy)-2,5-phenylenevinylene), poly(2,5-dioctyloxy-p-phenylenevinylene), poly(3,4-ethylene dioxythiophene), and poly(3-octylthiophene), and combinations thereof.

58. (new) The device of claim 55, wherein the polyaromatic hydrocarbons include naphthalene, anthracene, or rubrene.

59. (new) The device of claim 55, wherein the π-conjugated polymers are mixed with organic polymers.

60. (new) The device of claim 59, wherein the organic polymers include polystyrene or poly(methyl methacrylate).

61. (new) The device as in any one of claims 35, 37, 40 and 50 wherein a metal is incorporated into the structure of the π-conjugated material.

62. (new) The device of claim 61, wherein the metal is aluminum, gallium, boron or lithium and salts thereof.

63. (new) A method for tracking 1-10 MeV particles, comprising;

providing a plurality of layers, wherein each layer consists of an array of wires embedded in a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm, the array comprising a first plurality of parallel spaced apart wires intersecting orthogonally with a second plurality of parallel spaced apart wires, wherein the parallel wires are spaced at a distance of between 10-100 μm apart;

supplying electric power to the array;

inserting the array into a radiation field; and

detecting the signal generated when radiation strikes the wires.

64. (new) A method for tracking 1-10 MeV neutrons, comprising:

providing a plurality of layers, wherein each layer consists of an array of wires embedded in a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm, the array comprising a first plurality of parallel spaced apart wires intersecting orthogonally with a second plurality of parallel spaced apart wires, wherein the parallel wires are spaced at a distance of between 10-100 μm apart;

supplying electric power to the array;

inserting the array into a radiation field; and

detecting the signal generated when radiation strikes the wires.

65. (new) A method for detecting d,t reactions, comprising:

providing a plurality of layers, wherein each layer consists of an array of wires embedded in a solid organic semiconducting material consisting essentially of a π-conjugated material having an electrical resistivity of at least $10^9$ ohm-cm, the array comprising a first plurality of parallel spaced apart wires intersecting orthogonally with a second plurality of parallel spaced apart wires, wherein the parallel wires are spaced at a distance of between 10-100 μm apart;

supplying electric power to the array;

inserting the array into a radiation field; and

detecting the signal generated when radiation strikes the wires.